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Best

OPTICAL
SCANNER

U. S. DEPT. OF AGRICULTURE
STATISTICAL REPORTING SERVICE

OCT 26 1957

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WASHINGTON
DATA PROCESSING
CENTER

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STATISTICAL REPORTING SERVICE,
U.S. DEPARTMENT OF AGRICULTURE. + 2a

2
This booklet is your introduction to the
WDPC's newest service and equipment:

0
The IBM 1285 OPTICAL READER,
known as the SCANNER.

CAN THE WDPC HELP YOU?

The function of the Washington Data Processing Center is to serve data processing needs and solve data automation problems for the Department of Agriculture and other Government agencies.

The acquisition of an optical scanner adds to the versatility and capabilities of the Center's IBM System/360 Computers.

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December 1966,,

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HERE'S HOW THE SCANNER WORKS!

The IBM 1285 scanner reads data from tape printed by an adding machine equipped with an optical type font.

1 2 3 7
2 4 6 S
2 4 6 T
7 8 9 7

1.2 3 4
4.5 6 4
7.8 9 4

These font styles are accepted
by the 1285 Scanner:

7 8 9 7
1 2 3 C
6 6 6 S

3.3 3 4
6.6 6 P

IBM

NCR

A beam moves across the paper and around each figure. The difference between reflected light from white paper and dark ink is picked up by a cathode ray tube. The pattern of the dark area is compared with patterns stored inside the machine.

4 PLANNING YOUR SYSTEM

Planning steps are essentially the same as for any job that is to be keypunched. Usually, a WDPC representative will work with the user throughout the planning phases to make sure that the job specifications--

- Meet the user's requirements
- Make efficient use of
 - Scanner
 - Computer
 - 360/System programming techniques
- Do the job at lowest cost

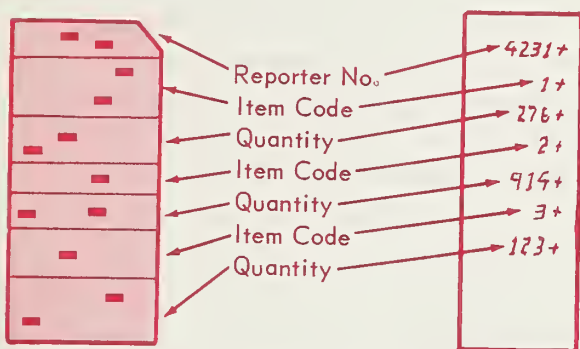
FORMAT

The WDPC has conducted research on formatting and is prepared to provide assistance in this area.

It is important that the best format is selected for the particular characteristics of your data. The right format can cut adding machine or scanner time in half.

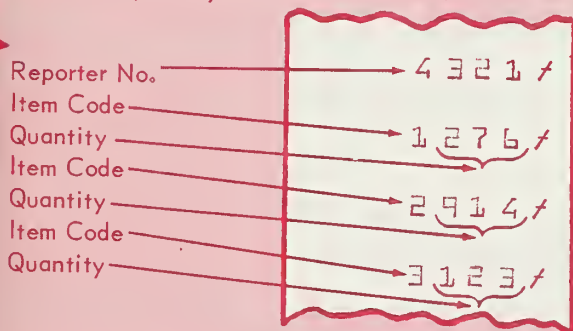
FORMAT FLEXIBILITY

The adding machine tape format is similar to punched card format...



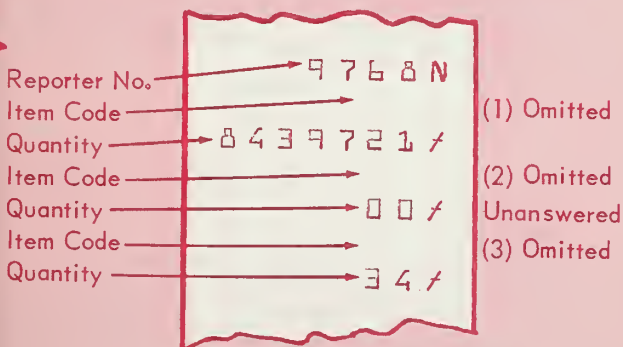
BUT it is much more flexible...

Code and quantity field on same line.



Variable field lengths.

Code indicated by position of answer.



KEY PUNCHING IS BETTER SOMETIMES

The question of which method of input is best can rarely be answered simply or quickly. Total cost should be the basis for decision; but, time deadlines, data security, and ability to record data at a particular location must also be considered.

KEY PUNCH --

- Machines may already be in operation at or near the data source.
- Operators may already be trained and producing efficient results.
- Machines may be needed for a local EAM installation.

CARD READERS --

- Can read any number, letter, or character which can be punched.
- Can read about 2½ times as many characters per second as the scanner under optimum conditions.

CARDS --

- Can serve dual functions (for example, as source document with mark sensing or porta-punch, or as file cards).

SCANNING IS BETTER SOMETIMES

ADDING MACHINES --

- Require very little operator training.
- Can be used for other office work.
- May already be available at or near the data source.
- May already be used on key punch jobs to get check (hash) totals.
- Cost less than other input devices.
- Need to record identifying data only once on a roll of tape.
- Totals can be used to verify or edit data.
- Are available with 10 keys or 10 banks of keys.

THE SCANNER --

- Can read the 10 numbers and 7 characters printed by adding machines.
- Can rewind a roll of tape in a fraction of a minute.
- Will accept paper from 1 5/8 to 3 1/2 inches wide.
- Can read a 200 foot roll of tape in less than 5 minutes.

ADDING MACHINE TAPE --

- Can hold data on one roll, equivalent to 1,800 punch cards.
- Requires less storage space.
- Costs less than cards.

HOW IS THE DATA USED BY THE COMPUTER?

Data coming to the computer on

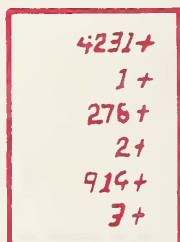
Punched Cards



Punched Paper Tape



or Adding Machine Tape



is transferred to
magnetic tape.



The Magnetic Tape is then used to feed the data into the computer. This makes more efficient use of the central computer because magnetic tape more nearly matches the computer's speed.

WILL ANY ADDING MACHINE WORK



It must be a model equipped with the IBM 1428 or NCR optical fonts. At least five manufacturers have models available; some also have other machines with optical font. IBM has worked with these manufacturers to assure compatibility with the 1285 Scanner. Most manufacturers recommend a special paper and ribbon to use for best scanner results.

There are several factors in producing acceptable scanner copy which only the user can control. For example, adding machine type must be cleaned and the ribbon must be changed before wear is apparent.

The WDPC has conducted research and studied every phase of scanner applications. The WDPC is also conducting a comprehensive test program to compile operating guidelines for preparation, handling, and transmitting tapes. Testing sample tapes from users' adding machines is a regular part of this program.

WHAT TO LOOK FOR . . .

To recognize a COMPUTER application in your data handling system:

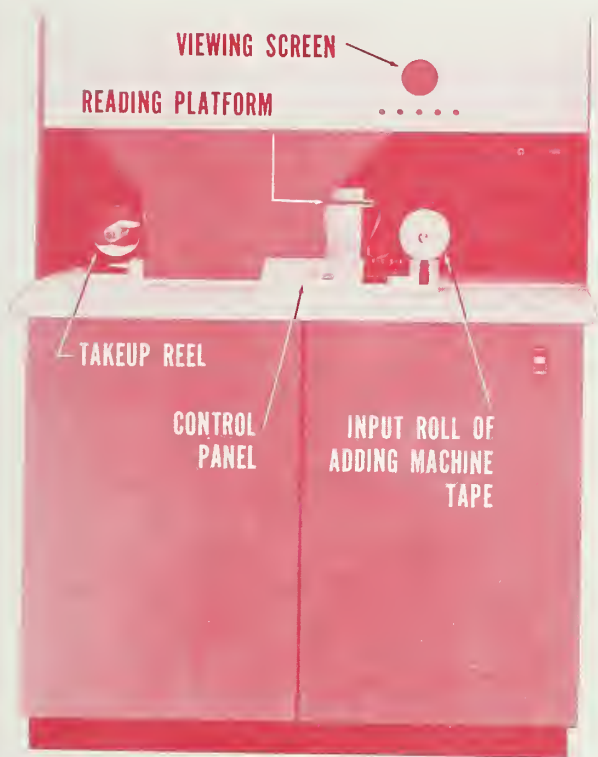
- Repetition - Same data used many times for different jobs, or analyzed many ways within the job, such as name and address files, data master files, stock, accounting, and research data.
- Volume - Peak workloads of many small but similar operations using the same data; or increasing workloads without personnel increases.
- Urgency - A deadline requiring handling at the expense of other work, overtime, or verification.
- Accuracy - A job requiring great precision, or a consistent level of accuracy, throughout a large volume of data.

WHAT TO LOOK FOR . . .

To recognize a SCANNER application in your automatic data processing:

- Repetition of data on one punched card after another.
- An adding machine already being used in a system.
- The data meets criteria of a computer application, but keypunch equipment or personnel are not available.
- Data which is all numeric.

IBM 1285 OPTICAL READER (THE SCANNER)



For information about the scanner, or additional copies of this booklet--

- Write the Washington Data Processing Center, U.S. Department of Agriculture, Washington, D.C. 20250
- Visit the WDPC, U.S. Department of Agriculture (South Building), 12th and Independence Ave., S.W., Room S-113A.
- Telephone 202 DU 8-3481 (IDS Code 111-3481).



